FAA Plans for Utilizing HLA AMG16

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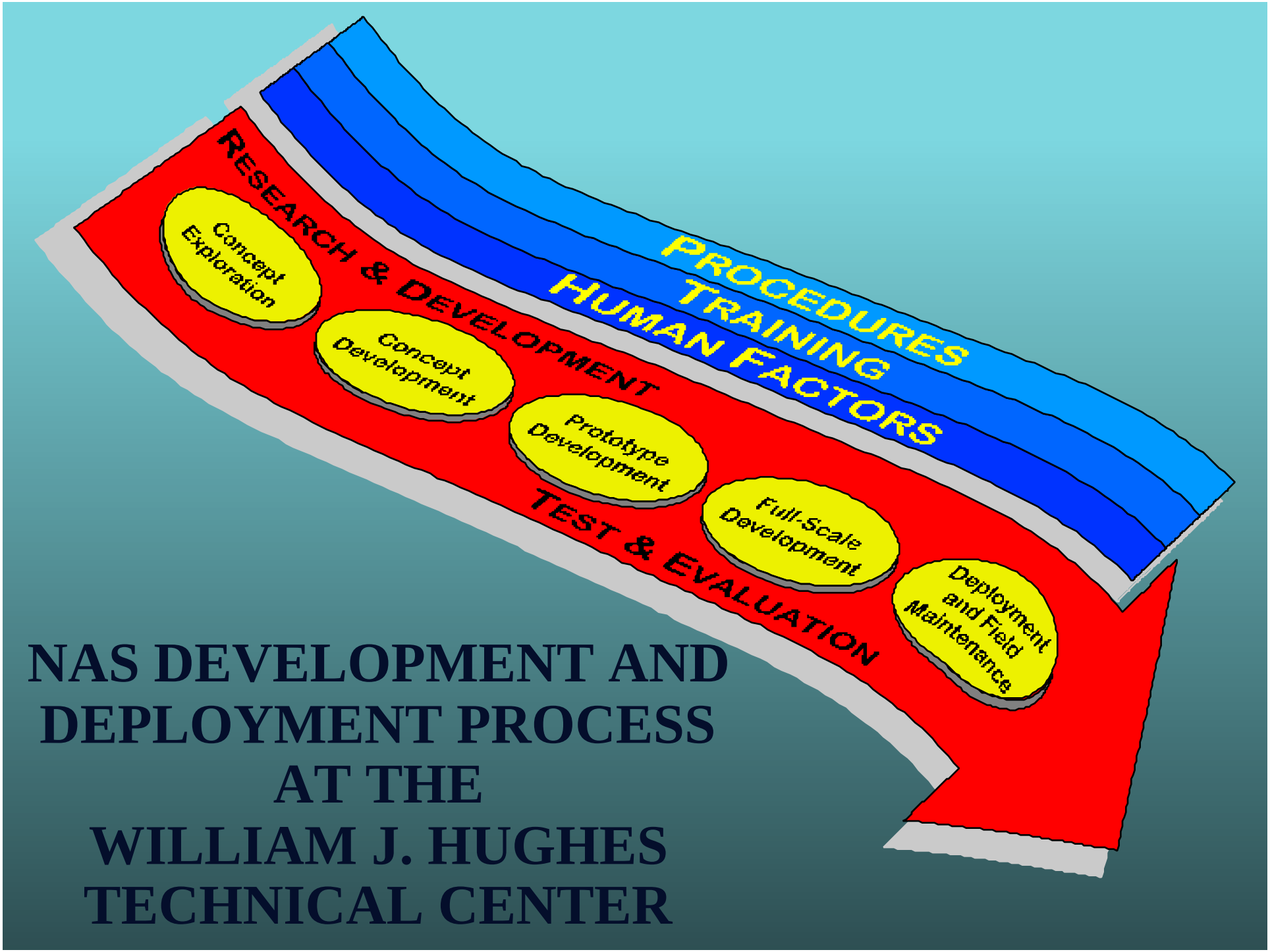
Agenda

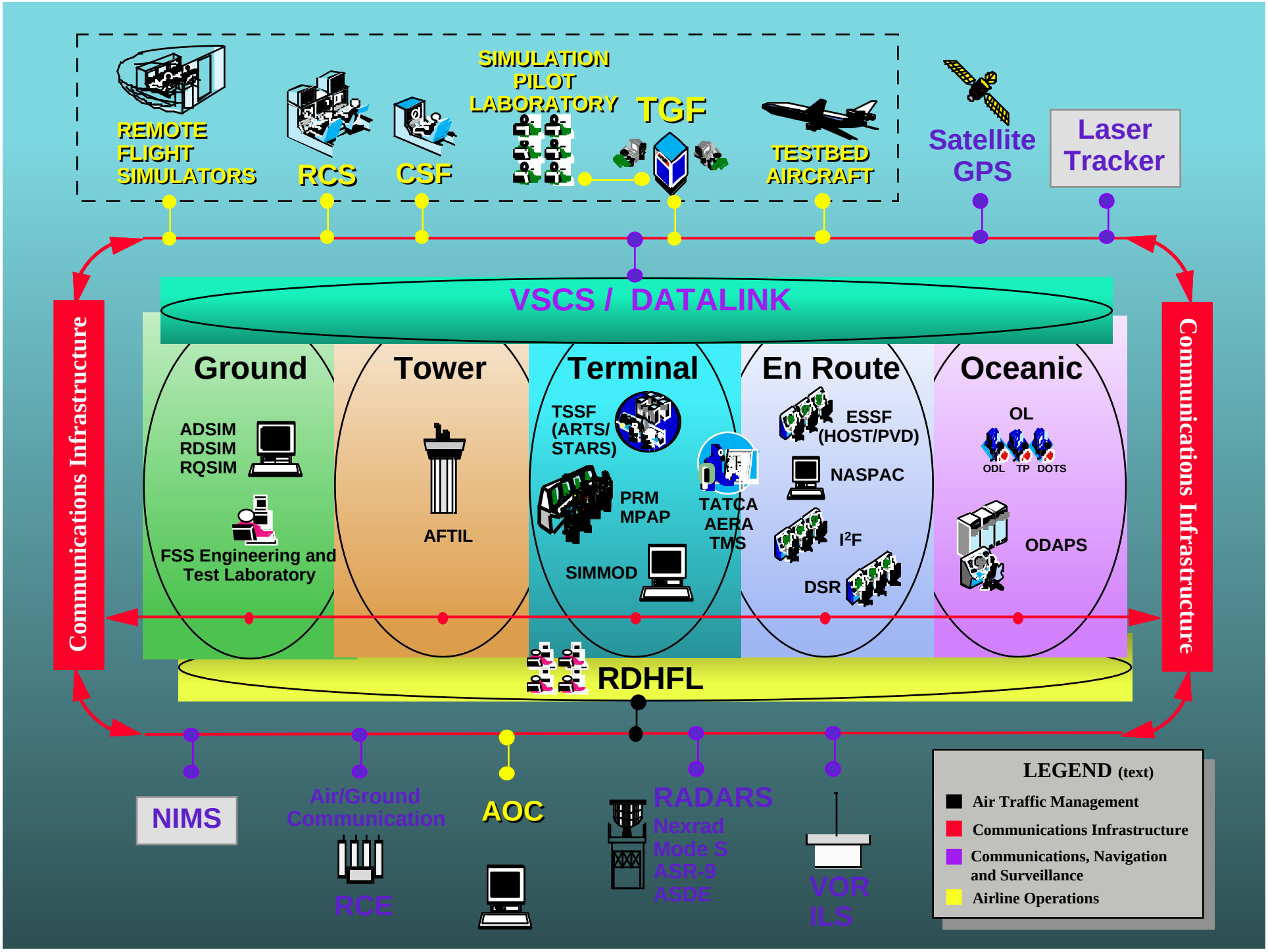
- **Technical Center Mission**
- **National Simulation Capability Program**
  - Formal Analysis Process
  - Laboratory Integration and Infrastructure Development Status

Mission

- "To perform research, prototype development, test, evaluation, and continued product improvements in support of FAA program offices to assure a safe and efficient evolving National Airspace System"



NAS DEVELOPMENT AND DEPLOYMENT PROCESS AT THE WILLIAM J. HUGHES TECHNICAL CENTER


REMOTE FLIGHT SIMULATORS
RCS
CSF
SIMULATION PILOT LABORATORY
TGF
TESTBED AIRCRAFT
Satellite GPS
Laser Tracker
VSCS / DATALINK
Communications Infrastructure
Communications Infrastructure
Ground
ADSIM
RDSIM
RQSIM
FSS Engineering and Test Laboratory
Tower
AFTIL
Terminal
TSSF (ARTS/ STARS)
PRM MPAP
SIMMOD
TATCA AERA TMS
En Route
ESSF (HOST/PVD)
NASPAC
I²F
DSR
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ODL TP DOTS
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RDHFL
NIMS
Air/Ground Communication
RCE
AOC
RADARS
Nexrad
Mode S
ASR-9
ASDE
VOR
ILS
LEGEND (text)
Air Traffic Management
Communications Infrastructure
Communications, Navigation and Surveillance
Airline Operations


NSC
NATIONAL SIMULATION CAPABILITY

NSC Laboratory Integration and Infrastructure Development Projects

- Air Traffic Control Simulation Protocol (ATCSP)
- Pre and Post Simulation Data Repository and Tools
- NSC Data Center
- Configuration Management and Simulation Guidelines

Air Traffic Control Simulation Protocol (ATCSP) Development Background

- 1992 ATCA Day demonstration of Technical Center distributed simulation network
- DOD Distributed Interactive Simulation (DIS) Workshop participation
  - FAA developed an ATCSP Specification Document based on DIS 1278 (ver. 2.0.4)
  - Civil ATC Special Interest Group established
- 1994 ATCA Convention demonstration of integrated ATC components utilizing DIS 1278 (ver. 2.0.4)
- DIS 1278 failed to meet all ATC simulation requirements
  - DOD movement to HLA was adopted for increased flexibility and efficiency for distributed simulation

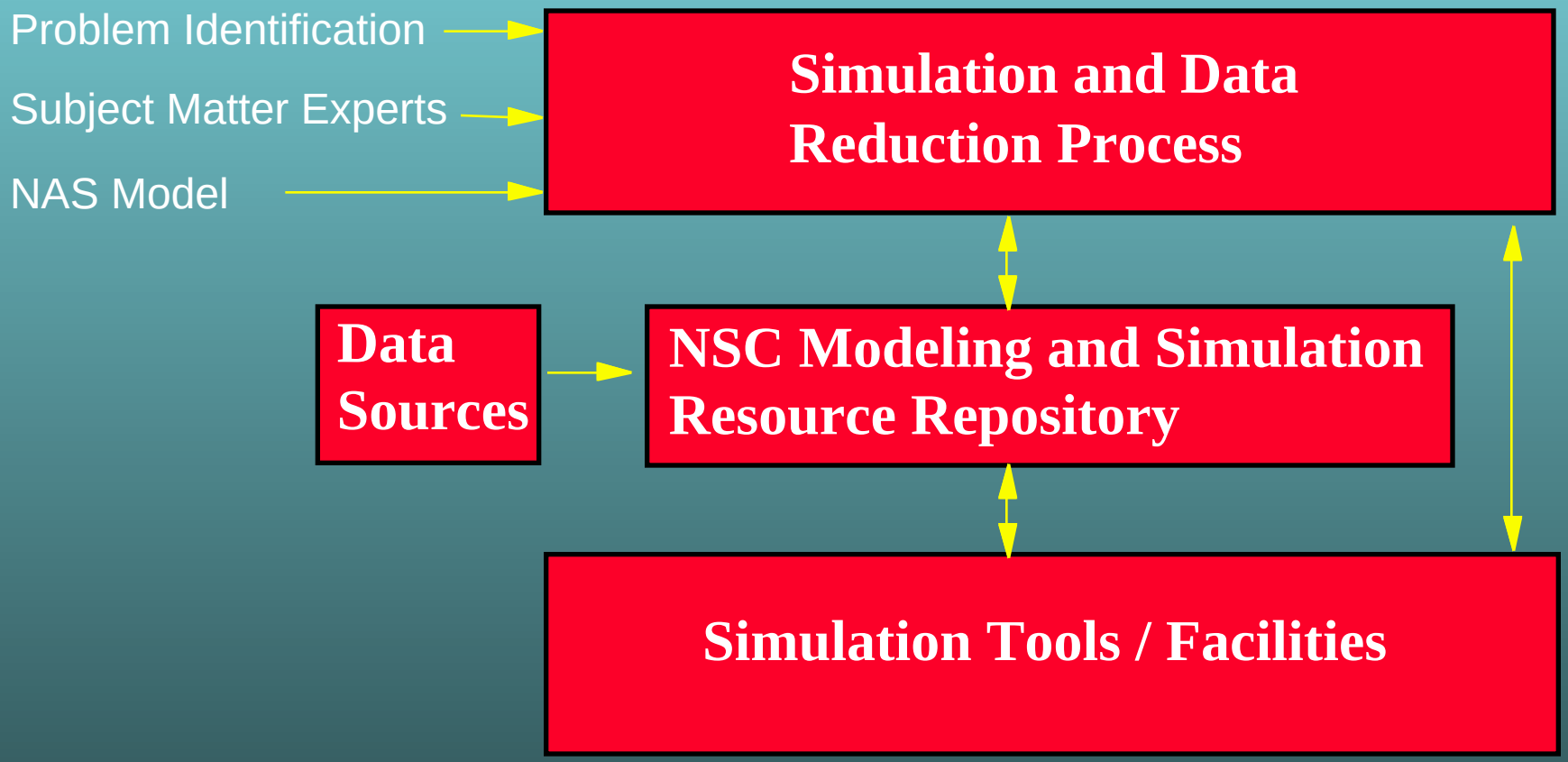
Air Traffic Control Simulation Protocol (ATCSP)

- Communications Infrastructure to Connect Distributed Systems
  - ATC operational and prototype systems and simulators
- Cost effective solution to support NAS analysis
- Incorporates DMSO HLA principles and DOD DIS standards
- Provides common tools and libraries to facilitate laboratory integration
- Re-use of core modeling and simulation components
- Integrates National and International Civil ATC facilities
  - Expedites acceptance of new concepts, technologies, transitional architectures, and procedures

Formal Analysis Process

- Uses efficient, proven, and accepted methods
- Process includes:
  - Methods, Procedures, Tools, Capabilities, and Expertise
- Process supports:
  - Scientific evaluation of NAS performance issues, transitional architectures, and future operational concepts
- Provides a highly effective modeling and simulation environment

High level view of the NSC Formal Analysis Process



Formal Analysis Process Benefits

- Reduces NAS risks
- Reduces resources and increases efficiency
- Identifies and tests the viability of new techniques and technologies
- Enhances the capabilities of individual laboratories and simulations
- Provides a tool for guidance and feedback to support FAA planning and investment decisions

HLA Implementation Activities

- Laboratory Integration Team and Civil ATC Working Group
- Free Flight Working Group
  - Expedite development of an efficient and effective distributed simulation infrastructure

Integration with Other Laboratories/Facilities